Source Water Assessment Program (SWAP) Report For Whately Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared: January 14, 2002

Table 1: Public Water System (PWS) Information

PWS Name	**Whately Water District**
PWS Address	**Chestnut Plain Road**
City/Town	**Whately, Massachusetts**
PWS ID Number	**1337000**
Local Contact	**Mr. Paul Fleuriel**
Phone Number	**413-665-4891**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	1337000-01G	245	605	Moderate
Well #2	1337000-02G	245	605	Moderate

Introduction

We are all concerned about the quality of the water we drink. Many potential contaminant sources, including septic systems, road salt and improperly disposed of hazardous materials may threaten the quality of water from drinking water wells. Citizens and local officials can work together to better protect drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The Whately Water District is small, rural water supply that serves the center of the Town of Whately with a total of 43 connections. The area includes residents, town offices, the post office and a restaurant; all are served by on-site septic disposal. The District maintains three wells; two active wells, Wells #1 (01G) and #2 (02G) that pump simultaneously to a gravity tank, located in a secure facility. A booster pump is used to pressurize the system by pumping to a hydropneumatic tank. There is an unapproved well #3 (03G) kept as an emergency source. Although this report does not address that well specifically, well #3 is located in the same vicinity as the active wells. The system does not have a back-up power source.

The Zone I and Interim Wellhead Protection Area radii for Wells #1 and #2 are 245 feet and 605 feet, respectively. The protective radii were based on a maximum month,

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

average daily pumping rate of 9,240 gallons per day (gpd). Please refer to the attached map that shows the Zone I and IWPA radii. The Zone I is the area immediately around the wellhead while the IWPA is a larger area that likely contributes water to the wellhead. The IWPA is only an interim protection area; the actual area of contribution to the wells may be larger or smaller. The District does not own the entire Zone I for the wells.

Wells #1 is 300-foot deep, 6-inch diameter bedrock wells with an estimated yield of 6 gpm. Well #2, located approximately 140 feet from Well #1, is a 440-foot deep well with an estimated yield of 15 gpm. Both wells are completed with 20 feet of casing and extend approximately 2 feet above grade. The wells are located on an upland area underlain by till and shallow bedrock. The bedrock is mapped as the Conway Formation, an argillite (carbonaceous phyllite) with quartz veins. The bedrock is highly folded and faulted; the Whately fault is mapped near the well site. Wells drilled in these conditions are considered highly vulnerable to potential contamination from the ground surface because there is no significant hydrogeologic barrier, such as clay, to prevent surface contamination from migrating into the bedrock aquifer.

The Whately Water District well water does not require and does not have treatment at this time. For current information on monitoring results, please review the Consumer Confidence report (CCR) that is issued annually by the water supplier or refer questions to the water supply contact listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

There are few land uses and activities within the drinking water supply protection areas that are potential sources of contamination. The overall ranking of susceptibility to contamination for the wells is moderate, based on the presence of at least one moderate threat land use or activity in the Zone I and IWPA, as seen in Tables 2. The District is commended for current efforts to protect the water supply.

Key land use issues include:
1. **Non-conforming Zone I**
2. **Residential homes**
3. **Septic system**

1. Non-conforming Zone Is – The Zone Is for Wells #1 and #2 are non-conforming with respect to MA DEP land use restrictions, which allow only water supply related activities in Zone Is and requires ownership or control of the land. Although there are no activities other than passive recreation within the Zone I, the District does not own the entire Zone I for the supply wells. Please note that systems not meeting DEP Zone I requirements must

Table 2: Table of Activities Common to the Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Transformers (above grade)	Well #1	Well #2	Moderate	Potential release of MODF
Septic system components	No	Both Wells	Moderate	All components in IWPA
Residential homes, lawns and parking	No	Both Wells	Moderate	Household hazardous materials, pesticides and herbicides
Passive recreation	Both Wells	Both Wells	Low	Some evidence of passive recreation

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

receive DEP approval and address Zone I issues prior to increasing water use, modifying systems or conducting any activities within Zone I.

Recommendations:

- ✓ Do not conduct any additional activities within the Zone I. Contact MA DEP prior to conducting any activities within Zone I.
- ✓ Prepare an emergency response plan for responding to an accidental release.
- ✓ Consider entering into an agreement for the right of first refusal to purchase the land if it becomes available for purchase or consider purchasing the development rights (Conservation Restriction).
- ✓ Record water meter data to monitor water use and help assess system for potential leaks.
- ✓ Consider testing well #3 so that it may be utilized as a supplemental source for the system. Decommission all unused wells/borings to prevent contamination of the aquifer.
- ✓ Monitor the transformer near the wells. Eliminate limbs and trees that may pose a threat to the transformers. Contact the utility to ensure that the oil in the transformers does no contain PCBs.

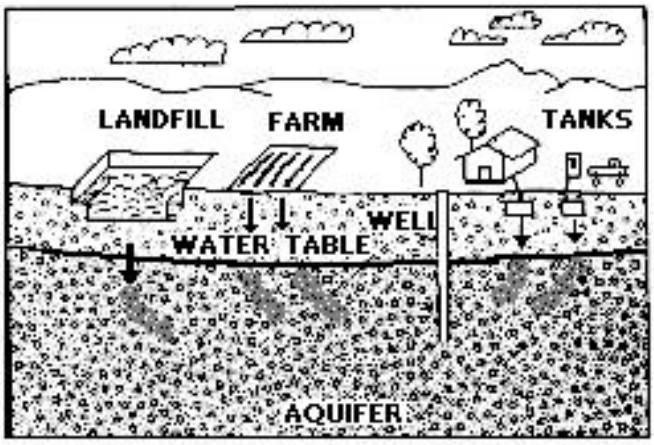

Figure 1: Example of how a well could become contaminated by different land uses and activities.

2. Residential homes – Residential development includes homes nearest to the wells. Normal residential activities pose minimal threat to the water quality of the public water supply provided homeowners are aware of the potential hazards of household waste, lawn care chemicals, animal waste and improper disposal through septic systems and they utilize best management practices.

Recommendations:

- ✓ Provide residents with information about protecting the facilities resources. Include information on Best Management Practices (BMPs) for the use of pesticides, household hazardous waste and septic system maintenance and disposal practices.
- ✓ Encourage residents to utilize the Franklin County Solid Waste Management facilities for household hazardous waste and paint exchange.

3. Septic systems - Septic systems are located within the IWPA of the wells. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply. The systems all appear to be topographically downgradient from the wells.

Recommendations:

- ✓ Refer to recommendations under item 2.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.
- ✓ Avoid septic tank cleaners, especially those with acids and solvents .

Other activities noted were evidence of passive recreation, hiking trail, near the wells. If there is evidence of increased use or loitering, consider fencing off the area or relocating the trail. Work with the DEP and local officials such as the Police, Fire and Highway Departments regarding protecting the water supplies through emergency response coordination.

3. Protection Recommendations

To reduce the system's susceptibility to contamination, please review and adopt the following recommendations:

Priority Recommendtion:

- ✓ Test well #3 for use as a supply and decommission all unused wells.

Zone I and IWPA:

- ✓ Keep all non-water supply activities out of the Zone I.
- ✓ Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use, modifying their system or conducting any additional non-conforming activities in Zone I.
- ✓ Prohibit public access to the wells by locking facilities and posting signs at the facility entrance. Check the integrity of the well caps regularly and replace as necessary. Decommission or seal any old wells that did not produce water.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping and evidence of vandalism.

Glossary

Zone I: The area closest to a well; a 100 to 400-foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

For More Information:

Contact Catherine Skiba in DEP's Springfield Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at: www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the public water supplier and town boards.

- ✓ Work with the local fire department, DEP, State highway, and local officials regarding protecting the water supplies through emergency response coordination.
- ✓ Be sure that the town is aware that your facility is a public water supply so that you can be notified of any accidents or threats from accidents. Ask that your facility be included in Town wide water supply protection efforts.

Training and Education:

- ✓ Continue staff training on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, certified operator, and other appropriate staff.
- ✓ Maintain the drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of any hazardous materials at the facility. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/bwp/dhm/dhmpubs.html.
- ✓ Continue utilizing Best Management Practices (BMPs) for the use of fertilizers pesticides on facility property.
- ✓ Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in town to include the facility IWPA in an Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). On or about May 1 the new RFR is available and the application is due back on or about June 31. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

- Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.

4. Attachments

- Maps of the Public Water Supply (PWS) Protection Areas
- Recommended Source Protection Measures Fact Sheet
- Pesticide Use Fact Sheet
- Fertilizer Use Fact Sheet
- Septic system brochures
- Wellhead Protection Grant Program Fact Sheet
- Excerpt from Guidelines for Well Decommissioning